Wearable Technologies for People with Disabilities
Tools for Life Mission

Tools for Life, Georgia's Assistive Technology Act Program, is dedicated to increasing access to and acquisition of assistive technology (AT) devices and services for Georgians of all ages and disabilities so they can live, learn, work and play independently and with greater freedom in communities of their choice.
What is Assistive Technology?

Assistive Technology (AT) is any item or piece of equipment that is used to increase, maintain or improve the functional capabilities of individuals with disabilities in all aspects of life, including at school, at work, at home and in the community.

- Assistive Technology ranges from no/low/light tech to high tech devices or equipment.
Why Assistive Technology?

• For a person without a disability, assistive technology makes life easier.

• For a person with a disability, assistive technology makes life possible.
Wearable Facts

• Invention of the first wearable device can be traced to the creation of the portable watch in the 16th century
• In 1979 Sony invented the Walkman
• In 2000, the first Bluetooth headset was sold
• 2004, the first GoPro was launched
• Google Glass released in 2013
• ABI Research estimates the global market for wearables in health and fitness could reach 170 million devices by 2017
• Global wearables market was expected to reach a value of 19 billion U.S. dollars in 2018
CCS Wearables Forecast

**CCS Insight Global Wearables Forecast, 2016-2020**

- **2016**
  - Fitness, activity & sports trackers: 123 million, $14.0 billion
  - Wearable cameras: 61 million, 3.8
  - Virtual & augmented reality headsets: 167 million, 6.3
  - Smartwatches & smartphone companions: 25 million, 1.7

- **2020**
  - Fitness, activity & sports trackers: 411 million, $34.2 billion
  - Wearable cameras: 114 million
  - Virtual & augmented reality headsets: 187 million
  - Smartwatches & smartphone companions: 102 million

**Device sales in 2020**

- Eyewear: 97 million
- Wristbands: 164 million
- Tokens, clip-ons & jewellery: 4 million
- Other: 2 million

- Hearables: 9 million
- Watches: 110 million

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info@ccsinsight.com / @ccsinsight
See for Yourself

What is OrCam?

OrCam is an intuitive portable device with a smart camera designed to assist people who are visually impaired.

OrCam gives independence.
NuEyes

- [https://nueyes.com/](https://nueyes.com/)
- $6,195
- Variable Magnification from 1x-12x
- Various contrast and color changes
- Voice Activated
- Wireless
- Lightweight Design
- 2 Year Warranty
- Text-to-Speech (OCR)
- Stream TV and Movies to the Glasses
- Full Android Computer
- Internet Browser
- Email
- Barcode and QR Scanner
- Social Media Applications
Oculus Rift

- Virtual Reality Headset
- Video Games
- Movies
- Real Life Simulations/Visit Real Places
- Create Art
- Starts at $399
Apple Watch

- Send & Receive Texts/Calls
- Apps
- Can be used for fitness
  - Heart Rate Monitor
  - GPS
  - Accelerometer
  - Fall Detection
- “Hey Siri”
- Haptic feedback
- Calendar
- From $329+
Embrace Watch

- Monitors Nervous System
- Monitors Physical Activity
- Monitors Sleep
- Around $249
- Works on iOS and Android
- [https://www.empatica.com](https://www.empatica.com)

![Embrace Watch Image]

**How it works: Embrace Alert System**

1. **Event Detection**
   - The Embrace watch is linked to the wearer’s mobile device with a Bluetooth® connection. This connection allows our systems to analyze the information and detect unusual events like convulsive seizures in real-time.

2. **Alert Dispatching**
   - The Alert app will be automatically activated when an event is detected by the Embrace watch. The App will send an alert notification to your caregivers using the mobile device's cellular data or WiFi connection.

3. **Caregiver Notification**
   - The Empatica systems will notify your caregivers one after the other to communicate the alert and ask if they can help. They only need a mobile phone with cellular signal to receive these notifications, no smartphone required.

4. **Caregiver Alert**
   - Your caregivers will be notified through an automated call and SMS. You can add multiple caregivers into the App so that there is always someone who can help you.
Watchminder

- Rechargeable battery
- 65 pre-programmed messages to chose from
- 30 daily recurring alarms
- Create your own personalized messages
- Helpful training and reminder modes
- Vibrating alert
- Countdown timer
Fitbit Versa

- Health & Fitness Smartwatch
- Water resistant
- Multi-day battery life
- Syncs to phones for music streaming, text or call notifications
- Guided Breathing Sessions, Sleep Tracking, Exercise Modes, Payments
- From $199
Garmin Forerunner 645 Music

• GPS Running Watch
• Monitors heart rate
• Can stream music or upload music to the watch
• Connects to iOS & Android devices
• Garmin Pay option
• Starts at $399
OTvest

- Denim weighted vest
- Adults and Children
- Can improve balance
- Trunk stability
- Motor Coordination
- Stress Reduction
- Attention
- Autism
- http://otvest.com/
Levi’s Commuter x Jacquard by Google

- Connects to phone via Bluetooth
- Control music, screen phone calls, get directions by swiping jacket.
- Can set gestures to control phone
- $350
- https://www.youtube.com/watch?v=yJ-lcdMfziw
Tommy Hilfiger Adaptive

- Adaptive designer clothing for men, women, & children
- Magnetic Buttons
- Adjustable Hems
- Velcro & bungee-cord closures
- Side seam openings
MagnaReady

• Magnetically infused dress shirt for people with limited mobility or dexterity.
• Available for both men and women.
• $65
Reveal

- Measures and tracks anxiety to help you better understand behavior and prevent meltdowns.
GlassOuse

• Helps people control electronics without using their hands.
• Based on your head movements, it moves the cursor onscreen. You bite on a blue extension to click, and it can go a week without charging.”
• https://vimeo.com/158593763
e-Handle

• * Handle/grip for e-readers, tablets and iPad Minis
• Safe way to hold devices with better grip, control and functionality
• Rotates 360 Degrees; Easy to use; Adjustable; Detachable
PopSocket

- A grip, a stand, a wrap, and more for phones and tablets.
- They make holding tablets and e-readers more comfortable and secure.
- With the PopSockets Mount companion product, they attach to nearly any vertical surface, including dashboards, mirrors, bed posts, refrigerators, and walls, for convenient hands-free viewing.
Modular hose - tabX Tablet Holder and Plate

• This solution is great for situations when there is no surface to attach to hold up your tablet.
• Whether lying on the sofa or sitting in a chair/wheelchair, the adjustable straps help hold it in place for hands free operation.
• Attach this tablet holder to your leg
BuzzClip

- small and discreet wearable for people that are blind or partially sighted
- uses ultrasound to detect obstacles that may lie directly in one's path
- offers essential head level obstacle detection
- $149
- BuzzClip
Serene

• Converts any TV Audio output into an infrared light beam for wireless transmission to a receiver
• Dramatically broadens the acoustic sweet spot of your living room.
• Be able to clearly hear all dialogues and stereo sounds in your movie or TV program.
Fidget Ring

• Similar to fidget toys; except you can wear them!
• Helps for people who are anxious or have trouble focusing on the something.
Octopus by Joy

- Smartwatch for Kids
- Icon Friendly
- Watch, Scheduler, and Assistant
- Visual Reminders

[Octopus by Joy](#)
Resources

https://www.statista.com/topics/1556/wearable-technology/
http://dl.acm.org/citation.cfm?id=1358913
https://static1.squarespace.com/static/516c369de4b00b44ca2bcdce/t/527fee38e4b0217581602d6e/1384115768724/wearable-computing-the-next-big-thing-in-tech.pdf
http://www.scientific.net/AST.85.11.pdf
http://thirdwavefashion.com/2016/06/wearable-tech-for-the-disabled/
http://www.choosemuse.com/
http://www.uprightpose.com/
http://www.scottpaultech.com/
http://www.modularhose.com/Assistive-Technology/mh-Tablet-and-Device-Solutions/130701
http://www.sereneinnovations.com/tvdirect-private-tv-listening-headset
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